

Summary: The sample is buffered to pH 5.6 and reacted with chloramine-T to oxidize bromide to hypobromous acid. The hypobromous acid then reacts with fluorescein to form pink eosin (tetrabromofluorescein). The intensity of the color, measured at 520 nm, is proportional to the bromide ion concentration.

Interferences: Iodine interferes quantitatively. In most water samples, the iodine concentration is negligible. For best results, the iodine concentration can be determined separately and subtracted from the apparent bromide concentration determined by this method. The presence of less than 0.50 mg/L cyanide or less than 500 mg/L chloride does not interfere. Reduce chloride interference by adding sodium thiosulfate. Thiocyanate interferes linearly.

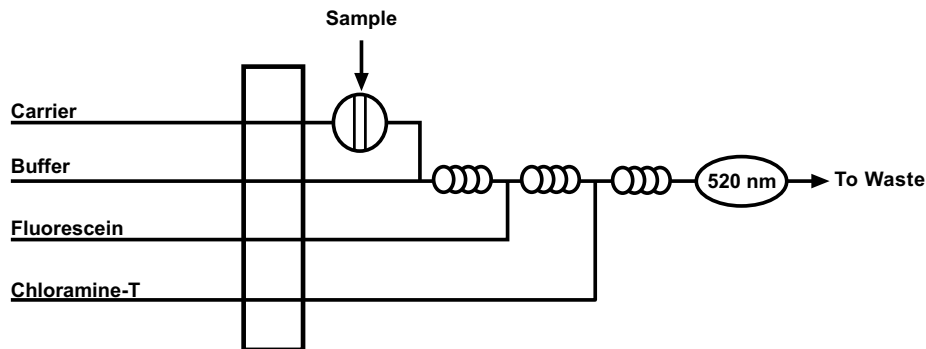
Performance Specifications:

Range:	0.20–50 mg/L
Throughput:	40 samples/hour
Precision:	
0.20 mg/L	<2% RSD
0.50 mg/L	<2% RSD
10 mg/L	<1% RSD
50 mg/L	<1% RSD
Method Detection Limit (MDL):	0.020 mg/L

Chemicals:

Acetic Acid, glacial, CH ₃ COOH	Kleenflow™ Basic
Ammonium Chloride, NH ₄ Cl	(OI Analytical Part #A002294)
Brij®-35, 30% w/v	Nitric Acid, concentrated, HNO ₃
(OI Analytical Part #A21-0110-33)	Potassium Bromide, KBr
Chloramine-T Trihydrate,	Potassium Hydroxide, KOH
CH ₃ C ₆ H ₄ SO ₂ NNaCl•3H ₂ O	Sodium Hydroxide, NaOH
Fluorescein, C ₂₀ H ₁₀ O ₅ Na ₂	

Basic Flow Diagram:



Selected References: Zitomer, F.; Lambert, J.L. Spectrophotometric Determination of Bromide Ion in Water. *Analytical Chemistry* **1963**, 35 (11), 1731–1734.

Stenger, V.A.; Kolthorf, I.M. The Detection and Colorimetric Estimation of Micro Quantities of Bromide. *J. Amer. Chem. Soc.*, **1935**, LVII, 831–833.

Rook, J.J.; Gras, A.A.; BanderHeijden, J. de Wee. Bromide Oxidation and Organic Substitution in Water Treatment. *J Environ, Sci. Health* **1978**, A13 (2), 91–116.

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